

Summary

Economic and Environmental Impact of Recycling

February 3, 2009

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A Comparison - Disposal verses Recycling

- In 2007 Tennessee cities, counties and businesses disposed of 6,818,074 tons of solid waste paying average landfill disposal fees of approximately \$218,172,368. During the same period, 1,319,553 tons of materials were recycled in the “Top 4” (fiber/paper, plastic, glass, and metals) commodity groups saving landfill disposal fees of approximately of \$42,225,696.
- It is estimated that lost revenues of \$150,256,731 may have been realized had the “Top 4” commodities been recycled at today’s current market rates instead of being disposed. This assumed a 75% recovery rate of landfilled commodity materials.
- At the height of last year’s market, the recyclable materials identified would have generated \$612,992,634 in revenue. This revenue was not collected because these materials were landfilled.
- Tennessee solid waste management collection and disposal companies reported 7,584 existing jobs at an average annual wage of \$36,115.
- Tennessee recycling/manufacturing sectors using the “Top 4” materials reported 77,100 jobs with an average wage of \$45,550.
- In Tennessee, the waste industry reported \$1,078,298,000 in sales in 2002 compared to \$5,339,700,000 in manufacturing output in the “Top 4” commodity sectors.
- TDEC estimates \$11,000,000 is needed to allow counties and municipalities to install and upgrade current material recovery facilities and collection systems and to educate the regulated community.
- Recycling results in a significant benefit in reducing greenhouse gases and saving energy.

SPECIFICS

- I. In 2007 Tennessee cities, counties and businesses disposed of 6,818,074 tons of solid waste paying average landfill disposal fees of approximately \$218,172,368. During the same period, 1,319,553 tons of materials were recycled in the “Top 4” (fiber/paper, plastic, glass, and metals) commodity groups saving landfill disposal fees of approximately of \$42,225,696.

| Category In 2007 (Most current information) | Tons | Cost or cost avoidance of landfilling commodities at average gate fee charge of \$32/ton | Estimated revenue from sales of recyclables | Lost revenue based on current market conditions of landfilled materials (Worst Case) | Lost revenue based on July 2008 market conditions of landfilled materials (Best Case) |
|---|-----------|---|---|---|---|
| Disposal | 6,818,074 | \$218,172,368 | \$0 ¹ | See Gate Fee | See Gate Fee |
| Recycled | 1,319,553 | \$42,225,696 | \$39,697,162 | \$150,256,731 | \$612,992,634 |

- II. It is estimated that lost revenues of \$150,256,731 may have been realized had the “Top 4” commodities been recycled at today’s current market rates instead of being disposed. This assumed a 75% recovery rate of landfilled commodity materials.

- III. At the height of last year’s market, the recyclable materials identified would have generated \$612,992,634 in revenue. This revenue was not collected because these materials were landfilled.

| Commodity Group | January 2009 Market | January 2009 Rates ² | July 2008 Market | July 2008 Rates ³ | Projected Cost Avoidance |
|--------------------|------------------------|------------------------------------|----------------------|---------------------------------|--------------------------------|
| Fiber/paper | \$39,578,910 | \$20/ton | \$197,894,550 | \$100/ton | \$84,435,022 |
| Plastics | \$80,794,200 | \$0.05/pound | \$ 323,176,800 | \$0.20/pound | \$34,472,180 |
| Glass | \$2,270,421 | \$12/ton | \$9,081,684 | \$36/ton | \$8,072,599 |
| Metals | \$27,613,200 | \$100/ton | \$82,839,600 | \$300/ton | \$11,781,631 |
| TOTAL: | \$150,256,731 | | \$612,992,634 | | \$138,761,432 |

- IV. Tennessee solid waste management collection and disposal companies reported 7,584 existing jobs at an average annual wage of \$36,115.⁴

| Sector by sector that uses recycling materials | Existing Jobs | Average Wage/Employee (Salary) | Annual Sales |
|---|------------------|--------------------------------------|-----------------|
| Landfill sector | 885 | \$34,440 | \$247,997,000 |
| MRF | 204 | \$23,799 | \$20,664,000 |
| All solid waste collection, remediation, and disposal service industries combined | 7,584 | \$36,115 | \$1,078,298,000 |

¹ Unable to track down estimated revenues from landfill gas projects. This should be considered a benefit though.

² Provided by RMCT

³ Provided by RMCT

⁴ 2002 US Census statistics for Tennessee for waste industries

V. Tennessee recycling/manufacturing sectors using the “Top 4” materials reported 77,100 jobs with an average wage of \$45,550.⁵

VI. In Tennessee, the waste industry reported \$1,078,298,000 in sales in 2002 compared to \$5,339,700,000 in manufacturing output in the “Top 4” commodity sectors.

| Sector by sector that uses recyclable materials | Existing Jobs | Average Wage/Employee (Salary) | Manufacturing Output |
|---|---------------|--------------------------------|------------------------|
| Fiber/paper | 19,100 | \$57,800 | \$548,700,000 |
| Plastics | 29,400 | \$39,200 | \$2,243,000,000 |
| Glass | 16,600 | \$36,600 | \$1,191,000,000 |
| Metals | 12,000 | \$48,600 | \$1,357,000,000 |
| TOTAL ALL SECTORS: | 77,100 | \$45,550 | \$5,339,700,000 |

VII. TDEC estimates \$11,000,000 is needed to allow counties and municipalities to install and upgrade current material recovery facilities and collection systems and to educate the regulated community.⁶

| Need | Number Expected | Cost | Extended Cost |
|---|-----------------|-----------|---------------------|
| Regional Material Recovery Facilities (MRF) | 10 | \$500,000 | \$5,000,000 |
| County Collection Grants | 95 | \$10,000 | \$950,000 |
| Municipality Collection Grants | 360 | \$10,000 | \$3,600,000 |
| Education | 95 | \$16,000 | \$1,520,000 |
| Total: | | | \$11,070,000 |

VIII. Recycling results in a significant benefit in reducing greenhouse gases and saving energy.⁷ - Recycling equivalents saved:

| | |
|---|----------------------------------|
| Equivalent of passenger cars not driven: | 143,487 cars |
| Gallons of gasoline saved: | 88,926,506 gallons |
| Barrels of oil saved: | 1,821,959 barrels |
| Household electrical use in one year: | 103,767 households |
| Acres of forest preserved from deforestation: | 5,464 acres |
| Metric tons carbon equivalents saved: | 213,651 tons |
| Metric tons carbon dioxide saved: | 1,151,413 tons |
| Energy saved (millions of BTU): | 44,960,948 BTU (times 1,000,000) |

Disposal equivalents lost:

| | |
|---|-----------------------------------|
| Metric tons carbon equivalents output: | 1,028,595.9 tons |
| Metric tons carbon dioxide lost output: | 3,771,458.6 tons |
| Energy loss: | 2,459,685.8 BTU (times 1,000,000) |

⁵ Economic and Community Development Websites for Tennessee Industry in 2005

⁶ Estimated infrastructure and education costs to help in the ramping up of draft rule requirements

⁷ Submitted data in ReTrac based on EPA WARM modeling